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| 10/574,478 | 04/03/2006 | Yoshihide Kawaguchi | Q93964 | 2362 |
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| SUGHRUE-265550 | | | PAUL, JESSICA MARIE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|--------------------------------------|---|
| Office Action Summary | Application No. 10/574,478 | Applicant(s) KAWAGUCHI ET AL. |
| | Examiner Jessica Paul | Art Unit 1796 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,4-9 and 11-18 is/are pending in the application.
 - 4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1, 2, 5-9, and 11-18 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/0250) _____
Paper No(s)/Mail Date 4/3/2006
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Response to Amendment

In response to the Amendment received on 10/24/2008, the examiner has carefully considered the amendments.

Response to Arguments

The Examiner notes the incorrect pending and withdrawn claims on the Office Action Summary as set forth by the applicant. The appropriate corrections have been made.

The Examiner notes applicants request to return an initialed copy of the PTO/SB/08 Form submitted with the IDS filed April 3, 2006, indicating that the references have been considered and made of record. The corrected PTO/SB/08 Form submitted with the IDS is attached.

Applicant's arguments filed October 24, 2008 have been fully considered, but they are not persuasive.

Regarding claims 1-6, rejected under 35 U.S.C. 102(b) as being anticipated by Nobuyuki and Misturu (JP 64-013139). The applicant states that the art teaches a polymer selected from the copolymer of allyl(meth)acrylate/(meth) acrylic acid or a copolymer of allyl(meth)acrylate/(meth) acrylic acid and additional polymerizable vinyl monomers, rather than a copolymer selected from an allyl(meth)acrylate or a (meth)acrylic acid, and if necessary, additional polymerizable vinyl monomer. Since, the applicant has not provided an English translation of the entire JP 64-013139 document, there arguments are mere allegations. The rejection has

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been withdrawn until a proper reference of Nobuyuki and Misturu can be obtained, were it can be concluded whether the prior art was intending a copolymer of allyl(meth)acrylate and (meth)acrylic acid or a copolymer of allyl(meth)acrylate or (meth)acrylic acid was desired.

Regarding claims 1-6, rejected under 35 U.S.C. 102(b) as being anticipated by Andrews (US Patent No. 4293674). The applicant states that the polymerization method of Andrews is different from that of the present invention, and therefore, the number-average molecular weight of the polymer of Andrews is different than that of the present invention. The Examiner disagrees. Although Andrews and the instant application do not teach the same method of polymerization, the method of polymerization is irrelevant to the claimed invention of the instant application. The instant application is drawn to a composition, and therefore the method of producing that composition is not considered. Also, the applicants amended claim 1 to incorporate the polymer having a number-average molecular weight of 20,000 or higher upon irradiation. The applicants state that examples 1 to 3 in the disclosure of Andrews show the polymer having a number-average molecular weight of 35,900 to 77,000; and in table 2, the number-average molecular weight of the polymer is 7,500 to 16,000. However, when relying on prior art, the entire document, including the specification, must be viewed as a whole, and not just preferred embodiments that are set forth. Andrews clearly states that the molecular weights of the homopolymers and copolymers of the dienyl methacrylates of the disclosed invention can be adjusted to be as low as about 1,000-2,000 or as high as about

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100,000 or higher. For air-drying finishes, there is little advantage in substantially exceeding number-average molecular weight of about 40,000 (col4, line5-53).

As previously stated, the process of polymerization is not considered, and therefore the dienyl methacrylate as taught by Andrews has the same properties of that required by the instant application. The 35 U.S.C. 102(b) rejection as being anticipated by Andrews has been changed to a 35 U.S.C. 102/103 rejection in order to include properties based on inherency.

Regarding claims 17 and 18, rejected under 35 U.S.C. 102(b) as being anticipated by Yanagase (US Patent No. 6160070), applicant's arguments are not persuasive. The applicants state that the vinyl methacrylate and vinyl acrylate are disclosed as specific examples in Yanagase et al., but one would have to pick and choose amongst the various methacrylate esters disclosed to arrive at the present invention of the instant application. The examiner disagrees. The disclosure of Yanagase et al. clearly envisions not only the formula as required by the applicant, but the specific compound as well.

Regarding claims 7-9 and 11-16, rejected und 35 U.S.C. 103(a) as being unpatentable over Andrews (US Patent No. 4293674) in view of Yeshin (US Patent No. 3615448); the applicants arguments have been fully considered and are persuasive. The examiner withdraws the 35 U.S.C. 103(a) obvious type rejections of claims 7-9 and 11-16.

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1. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Andrews (US Patent No. 4293674).

4. Andrews teaches a dienyl methacrylate, a curable compound of formula (ii):



Wherein R is an alkadienyl or cyclodienyl group which contains the 1,3- or 1,4-diene carbon skeleton, homopolymers and copolymers of the compound, and curable finishes containing the homopolymer and/or copolymer (abs). In the instance that Andrews R is the 1,3-diene, formula (ii) provided by the prior art, is identical to formula (i) provided by the instant application, wherein R¹ is a methyl group and R² is an unsaturated hydrocarbon chain containing three carbons.

The examiner takes note that the ethylenic unsaturation of the compound

disclosed by Andrews, provides the capability of polymerization via ultraviolet radiation.

5. Andrews is silent on the change in refractive index of the polymer, upon radiation, and the stereoregularity of 70% or higher in terms of syndiotacticity, and the percent of the radical-polymerizable side-chain vinyl groups remaining. In view of the compositions being substantially the same, the compositions would possess the same change in refractive index, same stereoregularity, and same percentage of remaining side-chain vinyl groups. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to the applicants to show otherwise. *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 2977); *In re Fitzgerald*, 205 USPQ 594 (CCPA).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5-9 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews (US Patent No. 4293674) as applied to claims 1 and 2 above, in view of Alger (Polymer Science Dictionary, 1 ed., Elsevier; 1989).

7. Regarding claims 5, 7, 8, 12 and 15; the disclosure of Andrews is adequately set forth above and is incorporated herein by the reference. Andrews

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does not teach ultraviolet radiation or the addition of a photoinitiator, sensitizer, or chain transfer agent. Alger, a teaching reference, provides for the definition of photo polymerization. Photo polymerization is free radical, or occasionally ionic, polymerization initiated by the interaction of light, usually ultraviolet wavelengths, with a photosensitive compound, producing free radicals. The compound may be a radical or photo initiator which is dissociated by the absorption of a photon to produce free radicals. Alternatively a photosensitizer may be used (pg313, ¶¶7-9). At the time of the invention, a person having ordinary skill in the art would have found it obvious to combine the composition as taught by Andrews, and applied ultraviolet radiation with the incorporation of a photoinitiator, as taught by Alger, with motives to produce a cured composition with faster cure times and less environmental waste.

8. Regarding claims 6, 8, 13, and 16; Andrews does not teach the irradiation dose, wherein the photo-chemically refractive-index-changing polymer undergoes a refractive index change of 0.005 or more. However, this is a result-effective variable that can be optimized. At the time of the invention a person having ordinary skill in the art would have found it obvious to optimize the irradiation dose and would have been motivated to do so for such desirable properties such as a fully cured article with desired properties base on the final product.

Regarding claims 6- 9, 11, 13, and 14; Andrews and Alger are silent on the change in refractive index of the polymer, upon radiation, and the stereoregularity of 70% or higher in terms of syndiotacticity, and the percent of the radical-

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polymerizable side-chain vinyl groups remaining. In view of the compositions being substantially the same, the compositions would possess the same change in refractive index, same stereoregularity, and same percentage of remaining side-chain vinyl groups. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to the applicants to show otherwise. *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 2977); *In re Fitzgerald*, 205 USPQ 594 (CCPA).

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Paul whose telephone number is (571)270-5453. The examiner can normally be reached on Monday thru Friday 8:00- 6:00p; alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jessica Paul
Examiner
Art Unit 1796

/JMP/
/Sanza L McClendon/
Primary Examiner,
Art Unit 1796